

CHEMICAL SOLUTION  
FOR ELECTROPLATING A COPPER-ZINC ALLOY THIN FILM

ABSTRACT OF THE DISCLOSURE

A method of fabricating a semiconductor device, having a Cu-Zn alloy thin film (30) formed on a Cu surface (20) by electroplating the Cu surface (20) in a unique chemical solution containing salts of zinc (Zn) and copper (Cu), their complexing agents, a pH adjuster, and surfactants; and a semiconductor device thereby formed. The method controls the parameters of pH, temperature, and time in order to form a uniform Cu-Zn alloy thin film (30) for reducing electromigration in Cu interconnect lines by decreasing the drift velocity therein which decreases the Cu migration rate in addition to decreasing the void formation rate, for improving Cu interconnect reliability, and for increasing corrosion resistance.

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